

MISCELLANEOUS.

On a Curious Phenomenon of Prefecundation observed in a Spionide Worm. By M. A. GIARD.

THE Annelide that forms the subject of this notice is a Spionide, the rather complicated synonymy of which may be stated as follows:—*Spio crenaticornis*, Montagu; *Aonis Wagneri*, Leuckart; *Colobranchus ciliatus*, Keferstein; *Uncinia ciliata*, Quatrefages; *Scolecoclepis vulgaris*, Malmgren (pro parte).

It has been found on the south coast of England, at Heligoland, at St. Vaast-la-Hougue, &c. It is common at Wimereux in a bed of shifting sand, where it lives in company with *Magelona mirabilis*, *Echinocardium cordatum*, *Bathyporeia Robertsoni*, *Carinella linearis*, &c. *Spio crenaticornis* is very nearly allied to *Spio bombyx*, Claparède, of the Bay of Naples. The first fourteen setigerous segments present, at the base of each foot, sacs containing a coil of chitinous setæ rolled up together. These organs, discovered by Claparède in *Spio bombyx*, and named by him “filières,” should be sought for in the other *Spiones*. Their presence would furnish a good character for the generic distinction of *Spio* and *Nerine*, which are so frequently confounded. The “filières” evidently seem to protect the Annelide from the sand which presses upon on all sides; similar organs exist in the *Magelone* in the posterior part of the body beyond the ninth segment.

The mature ovum of *Spio crenaticornis* has the form of a spheroid strongly flattened at the two poles. The equator is ornamented with about twenty transparent vesicles, arranged like a circlet of beads at the periphery of the greyish vitellus. These vesicles belong to the capsule, which is very thick and sprinkled with papillæ. This is shown by the action of picrocarmine; the vitellus contracting, each vesicle escapes from the vitelline mass, and assumes the appearance of a small hyaline phial suspended from the capsule by a slender neck. Similar ampullæ exist, in variable numbers, in the ova of the Spionidæ that I have examined, except those of the genus *Magelona*, which, moreover, differs in many respects from the typical Spionidæ. With very weak carmine one can colour the ampullæ, as was done by Claparède; they fill through the uncontracted neck. It is very evident that these elements have nothing to do with the formation of the blastoderm, contrary to the opinion of the illustrious zoologist just mentioned. Nor can we call them, as he does, *protoplasmic spheres*. I can only compare them to the follicular elements of the capsule in the Ascidia. Their physiological function is perhaps that of micropyles.

The germinal vesicle is very large; its radius is about one third of the equatorial radius of the ovum. Its contour is not at all well defined in the fresh ovum; the employment of picrocarmine renders it more distinct. The nucleolus is very bright and voluminous. Its position is strictly central.

Some time before the maturation of the ovum we see in the ger-

minal vesicle, besides the nucleolus, a cellular element rather smaller than the nucleolus, and situated at a variable distance from the latter. This excentric element is itself provided with a small, very distinct nucleus. At first widely separated from the nucleolus, it approaches this by degrees, and finally becomes applied to its surface, when it flattens out and assumes the form of a double hood (*calotte*). Becoming more and more closely applied to the nucleolus, it loses its nucleus, and in the end becomes reduced to a double membrane which surrounds the nucleolus as the pericardiac serous membrane surrounds the heart. Finally its substance unites with that of the nucleolus; and the mature ovum then presents no trace of this singular phenomenon.

I repeated this observation many times at the end of last September. The whole process is perfectly visible in the fresh ovum taken from the interior of the maternal organism, and *without* the employment of any reagent. Verick's objective is quite sufficient for following the phenomenon. The employment of picrocarmine, by distinctly limiting the germinal vesicle, shows clearly that it is not the *nucleus* of the ovum, but its *nucleolus* (Wagner's spot) that conjugates with the excentric cellular element.

I do not know how this element penetrates into the germinal vesicle, or what is its origin. I have met with it once or twice outside the germinal vesicle in the vitellus, where it is more difficult to distinguish it and to follow its progress, in consequence of the greyish granules of the vitelline mass.

The significance of this phenomenon of prefecundation I am still unable to understand. I have nevertheless thought that I ought to make known these facts, on account of their importance and the facility with which they can be checked.

I think that there are great differences between this observation and the more or less analogous observations formerly published by M. Balbiani. Perhaps there would be no difficulty in observing the same process in the ovarian ovum of *Sternaspis scutata*. It is in this way, at least, that I think we may interpret the appearances figured by M. Franz Vejdovsky, in an excellent memoir quite recently published*. The element designated the "Buckelchen" by the Prague professor seems to be nothing but the migratory cell in conjugation with the nucleolus.—*Comptes Rendus*, Oct. 17, 1881, p. 600.

Some new Genera of Freshwater Sponges.

Mr. E. Potts referred to a recent paper by H. J. Carter, F.R.S. (*Ann. & Mag. Nat. Hist.*, Feb. 1881), entitled "The History and Classification of the Known Species of *Spongilla*," in which the writer has distributed the species, heretofore grouped under one generic title, among five genera, founded upon the differences in form and arrangement of the spicula surrounding the statospheres.

* F. Vejdovsky, 'Untersuchungen über Anatomie, Physiologie und Entwicklung von *Sternaspis*' (Vienna, 1881), pl. viii. figs. 2, 11, 12, and 13.